

THE IBIS.

EIGHTH SERIES.

No. IX. JANUARY 1903.

I.—*The strange case of Athene chiaradiæ.*

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(Plate I.)

IN May 1900 I published a short descriptive note on a singular specimen of a small Owl belonging to the genus *Athene*, which I had received alive from my friend Comm. Emidio Chiaradia, M.P.* The bird had been captured in a nest in a loose stone wall, about sixty metres from a *casera* or *malga* † at Pizzocco on the Prealps of Friuli, at an elevation of 1003 metres. Pizzocco is not far from Caneva di Sacile, and is laid down on the Italian Military Ordnance Map of the province of Belluno in the lower right corner; the locality is, however, within the province of Udine (Friuli proper). I owe these minute and precise indications and many more, as will be seen further on, to my friend Signor Graziano Vallon, of Udine, who, being an enthusiastic and excellent ornithologist, took the case in hand at once, and, after residing in and carefully exploring the locality for

* Il. Il. Giglioli, "Intorno ad una presunta nuova specie di *Athene* trovata in Italia," in 'Avicula,' iv. fasc. 29-30, p. 57 (Siena, 1900). Reprinted in 'Ornis,' xi. p. 237 (Paris, 1901).

† In the Friulian Alps *malga* or *casera* is a rude low hut with loose stone walls and a high-peaked thatched roof. It is the residence of the shepherd or *malghere*, who sleeps there with his family on hay in a loft, each person rolled in a sack.

three consecutive years (1900, 1901, 1902), during the month of July, and bearing no small hardships, has been able to supply the materials for a complete history of the singular case on which I am now writing and the details for its elucidation as far as we can go. I here offer him my cordial thanks, and am sure that he will have those of all true ornithologists.

The nest from which my strange small Owl was taken was discovered by a shepherd-girl about twelve years old, not, as I had been previously informed, by a boy: as she was looking after her flock one afternoon towards the middle of July 1899, she noticed a small Owl carrying a big insect enter a hole in a wall hard by; on climbing up to the place she found, in a very rudimentary nest amongst the loose stones of the wall, four nestlings nearly fledged, which she carried away to her home and endeavoured to feed on insects. After a few days three of these nestlings managed to escape; the fourth was shortly after sold to a shoemaker at Caneva di Sacile, who used it, tied to a stick, a couple of months later, to attract Robins and Redstarts, which were caught with bird-lime; in this primitive sport the little Owl showed itself very proficient. Later still, my friend Comm. Chiaradia, a keen sportsman and good observer, saw the small Owl, and noticing its strange peculiarities, purchased it from the shoemaker and presented it to me.

This very singular small Owl came into my hands on the 13th of November, 1899; it was so wild that, after a careful examination, fearing that it might further damage its feathers, already in a rather dilapidated condition, I caused it to be killed, and had it mounted by one of my taxidermists. On dissection it proved to be a male.

What struck me at once in the aspect of this small Owl, and what attracted "*a prima vista*" the attention of all who saw it, was the colour of the eyes, the iris being of a deep brown, which looked black in the living bird. I may add here that the little girl who captured it with its fellow nestlings, on being closely questioned a year later by my friend Mr. Vallon, repeatedly asserted that the four nestlings she

had taken from the nest were perfectly similar, and that *all* had black eyes; and both she and her father and brothers repeated this assertion to Mr. Vallon when he met them again in July last. We shall see the importance of this assertion, as far as it can be accepted, further on.

Now it is well known that all the small Owls belonging to the genera *Athene*, *Nyctala*, *Surnia*, *Glaucidium*, and *Scops*, which include species found in Europe, have yellow irides. A singular exception, if proved, would be that of two non-European species of *Scops*: according to Hodgson, *Scops lettia* has yellow eyes when young, while the irides become brown in old birds. I will merely remark that this is very much against the rule. And in *Scops elegans* the iris is said to be black, *i. e.* dark brown. In the larger Owls a few similar exceptions in genera, in which the all but universal yellow or orange coloration of the irides is notorious, may be here mentioned. Thus, in the genus *Asio* two and perhaps three species, amongst which is *A. capensis*, have brown eyes; and in the genus *Bubo* we find *B. lacteus* and *B. shelleyi* with brown irides, and *B. cinerascens* with blue eyes.

I will here mention a case which has quite recently come to my knowledge, and which might have a closer interest for us were it not decidedly teratological, for it concerns a specimen of *Athene noctua*. This little Owl, an absolute albino, with snowy-white feathers, pink cere and toes, yellowish-white bill and claws, is interesting, because such cases of albinism are rare amongst Raptores, both nocturnal and diurnal. But the strange peculiarity of this specimen, which was captured in the nest, with four *normal* nestlings, at a place called Stagno, near Pisa, in July 1901, and which I have kept alive at the Museum since the end of January last, is the colour of the irides; these, instead of being pink—*i. e.* colourless, as in all cases of total albinism,—are of a dark greenish grey, quite different from the dark brown of the bird I have called *A. chiaradiæ*; the borders of the eyelids are pink. I know of only one other instance of a perfectly white Civetta (*A. noctua*), now in a private collection at Leghorn, but Mr. A. Carreras, an excellent observer and

first-rate field-ornithologist, who skinned it, assured me that it had pink eyes.

But if the most striking peculiarity to the casual observer in our *A. chiaradiæ* is the dark brown colour of the irides, to an ornithologist other and, perhaps, more important differences between it and *A. noctua* are obvious at a glance.

My specimen, the type of *A. chiaradiæ*, is, as I have already said, a male, hatched at the end of June or the beginning of July; it was, when I received it and had it killed and mounted (14 xi. 1899), in its first autumnal plumage with slight traces of the nestling garb. I should consider it all but fully grown. On comparing it with an adult male of *A. noctua* (12 i. 1888), from the same subalpine region, Pieve di Cadore (N. 3066 Cat. Birds Ital. Coll. R. Zool. Mus. Florence), careful measurements gave the following results:—

	<i>A. chiaradiæ.</i>	<i>A. noctua.</i>
Total length	m. 0·200	m. 0·220
Wing	„ 0·145	„ 0·165
Tail	„ 0·065	„ 0·075
Tarsus	„ 0·025	„ 0·035
Upper mandible (height)	„ 0·0085	„ 0·0075

Of course a slight difference in age and the condition of the feathers (in my *A. chiaradiæ* these were rather worn and spoilt) may partially account for the difference I found in the size of the two birds; and I may here remark that my friend Prof. G. Martorelli, who, as we shall see, carefully studied and compared the second specimen of *A. chiaradiæ* secured, a female, which was of about the same age as mine (having been captured as a nestling 7 vii. 1901, and killed and mounted 5 xi. 1901), found no appreciable difference in size between it and specimens of *A. noctua*. And yet both this and a subsequent comparison I was able to make between these two black-eyed Civette, the latter being yet alive, have not done away with the impression that *A. chiaradiæ* is a smaller bird than the average *A. noctua*. In the type specimen of the former the skull is narrower and less depressed than is usual in the common species. On dissection

I noted nothing worthy of remark, except the large size of the testes, considering the time of the year and the age of the individual. My friend Prof. E. Regalia, one of the best comparative osteologists I know, on carefully comparing the limb-girdles and the sternum of this and the common *Civetta*, found no appreciable differences except slightly smaller dimensions in our bird.

I have nothing to add as to the colour of the irides in *A. chiaradiæ*, in which the palpebral edges are black, making the eyes look larger than in *A. noctua*. In my specimen the bill is notably larger and more robust, as shown in the measurements given above; it is, moreover, of a uniform greenish yellow, not darker towards the base, as is usually the case in *A. noctua*. The tarsi and toes are nearly bare in my type specimen, owing to its having been tied by the leg when used for catching small birds; the toes thus appear to be proportionately longer than is the case with the average *Civetta*, but I have noticed that the relative length of the toes is subject to individual variation in these small Owls. In my specimen the claws are somewhat thickened and obtuse, the natural consequence of life in captivity.

But what is more important, I think, than any of the previous differential characters noted, is the obvious fact that the tone and the pattern or style of the coloration of the plumage is absolutely different from that in *A. noctua*, and, I may add, in any other species of that and allied genera. Thus in *A. chiaradiæ* the light-coloured spots on both remiges and rectrices, which form *transverse* bands in other small Owls, are replaced by *longitudinal* bands formed by the white margin of the outer and inner webs of those feathers. This character is well shown in the figures (1 and 2, p. 6) of the outspread wings of the second example of *A. chiaradiæ* and of one of its co-nestlings, a normal *A. noctua*, which I owe to the kindness of Mr. Vallon.

In my first specimen of *A. chiaradiæ* the wing- and tail-feathers, especially the latter, are rather damaged; but the distinctive features are clear. These feathers are of a dark umber-brown and shew no trace of those lighter and darker

Fig. 1.



Wing of *Athene chiarae*, from a living specimen about two months old. (7 ix. 1901.)

Fig. 2.



Wing of co-nestling of *Athene chiarae* (ordinary *A. noctua*), about two months old. (7 ix. 1901.)

transverse bars, exclusive of the spots, which are conspicuous on the remiges of *A. noctua*, less so on the rectrices. On the outer web of the first primary in *A. chiaradiæ* the white marginal stripe is incomplete, being divided into two slight blotches, and on the next following feathers the longitudinal marginal band, though continuous, shews traces of division, bulging out at intervals representing the primitive and now confluent blotches. On the lower portion of the margin of the inner web of the remiges of *A. chiaradiæ*, the white blotches also run together so as to form a longitudinal band, shewing, however, more or less distinct traces of a division into spots, but these are never distinct and isolated, so as to form together transverse bands.

The tail-feathers are in a similar condition and shew a narrow longitudinal whitish stripe on the edge of the outer web; a broader one with indications of a division into blotches on the margin of the inner web. I fail to see here any divergence in my description from that made of the second specimen of *A. chiaradiæ* by my friend Prof. Martorelli, on which supposed divergence he mainly bases the supposition that the two specimens of the black-eyed *Civetta* are not, as I maintain, perfectly similar.

The ground-colour of all the upper parts in *A. chiaradiæ* is a fine dark brown, similar to that of the dorsal feathers in *Nyctala* and *Surnia*, and totally devoid of that rufous tinge which is more or less prevalent, but always present, in *A. noctua*. Again, the light blotches are apparently larger and more numerous, except on the top of the head—this is the case especially on the scapulars; certainly they are more conspicuous, but then they are of a pure white and not more or less veiled and tinged with rufous, as in *A. noctua*. In the type specimen of *A. chiaradiæ*, on the upper part of the back, between the scapulars and on the nape, are traces of the nestling plumage; these feathers are browner than those of the adult garb, but they are not rufous as in *A. noctua*, and the markings do not differ from those of the adult.

The ground-colour of all the lower parts in *A. chiaradiæ*

is pure white. The median longitudinal stripes on the feathers of the chest, abdomen, and flanks are of the same dark brown as the upper parts, and are narrow and well-defined, without a trace of that light rufous diffused washing always found on the lower parts of *A. noctua*, in which, moreover, the blotches are larger, more or less rufous, and less defined.

In my first specimen of *A. chiaradiæ* the facial disk is of a pure silky white in its lower portion, and only slightly darkened above by the black elongated rhaebides of the modified feathers which surround the eyes and the base of the bill. The basal patch on each side, of a dark brown, is very conspicuous. I need hardly say that in *A. noctua* the facial disk, more or less tinged with grey, brown, and rufous, is very different.

The feathers on the vent and the under tail-coverts are pure white in *A. chiaradiæ*. In my specimen the tarsi and toes are well nigh bare; but when I examined the second specimen, which Mr. Vallon kindly brought to Florence in October last for my inspection, I noted that both tarsi and toes were better clothed than is usual in the ordinary Civetta.

This will, I think, suffice for a description of this strange new form of *Athene*, the excellent figure of which (Plate I.) I owe to the kindness of my friend Prof. Martorelli. It has been taken from a photograph of the second specimen of *A. chiaradiæ*, beautifully mounted by Prof. Martorelli himself, and perfectly similar to the type specimen, except that its plumage is in a perfect condition, and will go further in conveying an exact idea of the aspect of this singular bird than the most minute description.

When I wrote in May 1900 on this strange case, I had a very incomplete knowledge of the history thereof. I long hesitated to give a name to the new form before me, but having excluded the possibility of an explanation based on hybridism and on a teratological origin—possibilities which I persist in emphatically excluding even now,—and thus not being able to admit that the bird before me was a hybrid, and

less still a monstrosity, of *A. noctua*, I mooted the only hypothesis left me and named it, with due caution, *A. chiaradiæ*, dedicating it to the friend who had given it to me. To explain its isolated position in the genus *Athene*, to which it evidently belongs, and its extreme rarity, I may state that *A. noctua* is one of the commonest and best-known birds in Italy, and that no one had before mentioned the occurrence of black-eyed specimens in this country or elsewhere. I finally started the notion that my specimen might be one of the last of a species on the verge of extinction. Similar cases are known amongst birds; for have we not within the Italian region *Sitta whiteheadi*, utterly distinct, singularly isolated, and evidently on the verge of extinction?

Of course I was most anxious to learn more about *A. chiaradiæ*, and to secure, if possible, more specimens. Thus I closed my short paper in 'Avicula' with a warm appeal to my fellow ornithologists in Italy, and more especially to those residing in Friuli. I knew beforehand that there, at least, my appeal would not be in vain, for I have had the good fortune to know and appreciate Mr. Vallon, of Udine, for the last twenty years. Mr. Vallon responded nobly to the call, and the day after reading my paper (24th June, 1900) started from Udine for Caneva di Sacile and succeeded (but not without difficulty, for the shoemaker, whom he easily found, knew neither the name nor the residence of the little shepherd-girl from whom he had bought the black-eyed Civetta, and poor Comm. Chiaradia had been laid up with a stroke of paralysis) in tracing back my specimen of *A. chiaradiæ* to the exact locality of its birth and in correcting some details regarding its capture. He did not, however, succeed in getting more specimens, although he scoured the locality and the season was the right one. The mountaineers of Pizzoceo told him, however, that they knew well the kind of Civetta he sought, and that it was not rare in that locality, where it breeds, and they promised to let him know when a nest was found—assertions which, with one exception, can only be received *cum grano salis*. Nothing

daunted by his previous failure, early in July of the following year Mr. Vallon was again on the spot, and on the 7th of that month his pains were rewarded by the capture of a second specimen of the peculiar black-eyed Civetta. It was taken from the nest in a cavity of a rocky cliff, about 100 metres from the *malga* of Pizzocco, at an elevation of about 1100 metres, and thus in close proximity to the wall in which the first specimen of *A. chiaradiæ* was got two years before. It was no easy task to get at the youngsters, for several big stone blocks had to be moved; they lay on the bare rock. But what astonished Mr. Vallon was to find in the same nest from which he had taken the small black-eyed Civetta, three nestlings with the pale yellow irides of the young *A. noctua*, covered, moreover, with the reddish-brown down and growing feathers of that well-known species. The nestling *A. chiaradiæ*, still in down, with feathers partially emerging, has been minutely described by Mr. Vallon in his first paper, noticed further on; it is very different.

Mr. Vallon started several ingenious hypotheses to explain the presence of an *A. chiaradiæ* in the nest of an *A. noctua*; but these have been withdrawn, as we now know that thus far such is the ordinary case! Mr. Vallon, and a bird-catcher who was with him, sought without success to capture the parent birds. He published shortly after two interesting and complete accounts of the case and of the results of his excursions to Pizzocco*.

The young *A. chiaradiæ* and its three ordinary co-nestlings were taken to Udine and carefully reared. In the following October, when fully fledged, Mr. Vallon took the black-eyed Civetta and one of its brothers on a round of visits; thus the two living small Owls, so unlike each other and yet belonging to the same nest, were carefully inspected in succession by Prof. Martorelli at Milan, Count Salvadori at Turin, and myself at Florence. I had a certain advantage over

* G. Vallon, "Nota intorno alla nuova specie di Civetta scoperta nel Friuli," in *Atti Accad. di Udine*, ser. 3, viii. seduta 26 luglio 1901 (Udine, 1901).—*Id.* "Ueber *Athene chiaradiæ*, Giglioli, in Friaul," in *Orn. Jahrb.* xii. p. 217 (Hallein, 1901).

my friends, for I was able to compare the second specimen of *A. chiaradiæ* secured with the first one and type of the new form. I found them absolutely alike, and so did those who saw them with me on that occasion. Meanwhile Mr. Vallon had learnt that a third specimen of the black-eyed Civetta had been taken at Fregona, in the province of Belluno, by a forest guard named L. Barzotto; this was on the 19th of August, 1901. He hastened to the spot, but arrived too late, the little Owl, which was half fledged, had been devoured by a cat! He learnt, however, that it had fallen from the village *campanile* together with a co-nestling with pale yellow eyes; another one like the latter was found in the nest. Here we have a second instance of the black-eyed Civetta in the same nest with normal *A. noctua**.

As I have previously remarked, the second specimen of *A. chiaradiæ*, a splendid bird in perfect plumage, which proved to be a female, was killed on the 5th of November, 1901, and was beautifully mounted by Prof. Martorelli, who took the opportunity to produce the first and very fine picture of this Owl which we possess—the one which, with his kind permission, is here given. Prof. Martorelli has published it as a heliotype, with some very sagacious notes on the singular case of *A. chiaradiæ*, which I shall briefly examine on drawing up my conclusions †.

I now come to the last episode of this interesting history. Early last July, anxious to procure further information on the black-eyed Civetta, the indefatigable Mr. Vallon was again at Pizzocco, where he passed most of that month. On the 11th I received a pencil-written post-card from him, announcing that he had discovered two more specimens of *A. chiaradiæ* in identical circumstances to those of last year, viz. in a nest with normal nestlings of *A. noctua*; these were three, making up the usual number in a brood of these small Owls. But, what was of great importance,

* G. Vallon, "Fauna Ornitologica Friulana," in Boll. Soc. adriat. Sc. Nat. xxi. p. 109 (Trieste, 1902).

† G. Martorelli, "Ulteriori osservazioni sull' *Athene chiaradiæ*," in Atti Soc. ital. Sc. Nat. xl. tav. ii. (Milano, 1902).

he had succeeded that day in capturing with a noose one of the parent birds on the nest; it had yellow eyes, and proved on dissection to be the male. The next day he secured the female in the same way, likewise on the nest; she also had yellow irides!

The nest had been discovered by the shepherds at the end of June, about ten days before Mr. Vallon reached Pizzocco; it was amongst the loose stones of a wall forming an enclosure only about 15 metres from the spot where the little girl got the first nest in 1899, from which my type specimen came, and about 70 metres from the *malga* of the shepherds. The nest was well in amongst the loose stones, but quite bare. To my mind there can be little doubt that the adult couple captured on this nest are the parent birds of the clutch of nestlings taken last year with one *A. chiaradiæ* amongst them, and also of the first brood got in July 1899, from which my type came, and which, if the assertions of the girl who got them and her father and brothers are to be accepted, were all of the black-eyed kind.

On his way back Mr. Vallon was obliged to take shelter from the rain in a *malga* halfway between Pizzocco and the plain; the shepherd there assured him that four years ago he had himself used a black-eyed Civetta for capturing small birds; this would make the *ninth* specimen of this peculiar form, unless it were one of the wanderers of the first set.

The five nestlings of this year's catch are alive in the care of Mr. Vallon at Udine; he is bringing them up, and when fully grown they will complete the family group, which I intend keeping together in the Italian Collection of the Royal Zoological Museum here. From Mr. Vallon's description of the two young *A. chiaradiæ*, they in no way differ from the one he brought up last year; but I have not yet seen them. As to the parent birds, they are now before me, for Mr. Vallon kindly sent them as soon as he got back to Udine. As he himself remarked in his first letter to me after their capture, they are both singular, and although they cannot in any way be considered other than true *A. noctua*, yet they are

individually and in different ways distinct from the usual *A. noctua*. I have compared them carefully with a good series of adults of both sexes from different parts of Italy, and found none like them.

The male is a large bird, bigger than the average adult male *A. noctua*, whilst its head looks rather small, at least in the mounted specimen. The coloration of the brown upper parts and of the blotches on the lower parts is singularly light, nearly isabelline. For this reason I have compared it with a specimen of the so-called *A. glauæ* from Tunis; but it is quite different and much lighter: indeed I cannot consider the North-African bird distinct from our ordinary Civetta, and I have specimens from Tuscany that seem perfectly similar to that from Tunis on the most minute comparison. The male from Pizzocco has hardly any white on its facial disk, which is grey; and, lastly, it is remarkable for the great number, large size, and white colour of the blotches on the top of the head, and for the extraordinary width of the rectrices, the outer ones (not the broadest) measure 22 mm., the usual width being about 16 mm. in the adult males of *A. noctua*.

The female is not less remarkable, but quite different: she is small and very dark, but the brown of the upper parts and the big blotches of the ventral feathers are tinged with rufous, and differ from the dark umber brown of *A. chiaradiæ*, while they are considerably darker than in the average *A. noctua*: the facial disk is remarkably so—brown, greyish, with small light spots, but no white. The top of the head is as profusely spotted as in the male, more so than in the average Civetta, but the mesial light spots of each feather are narrow and elongated, and, although tinged with rufous, are very conspicuous on the dark brown ground-colour. Finally, the tail-feathers are not unusually broad.

Both these birds, from which a progeny of black-eyed Civette have sprung, had, as I have already mentioned, yellow irides. The cry was that of the well-known *A. noctua*, and from Mr. Vallon's observations the habits were similar; he noticed an extreme rapidity in their flight.

The following are the measurements he took on these two specimens when in the flesh:—

	♂.	♀.
Total length	m. 0.226	m. 0.212
Tail	„ 0.088	„ 0.088
Wing	„ 0.156	„ 0.152

The smaller size of the female is unusual in these Owls: for although the sexes do not differ much in size, the female is slightly the larger; this one is smaller than the average *A. noctua*. The two parent birds in no way resemble their black-eyed offspring, and at the same time they each differ in different ways from the average *A. noctua*, from which, however, they cannot be considered distinct, as I have already remarked.

I have not seen a specimen of *A. chiaradiæ* in down, but from Mr. Vallon's description it is very different from the nestling of the ordinary Civetta; besides having dark brown eyes, the down is whiter on the back and on the lower parts, and the nascent feathers are much darker, shewing no rufous tinge.

And now that I have given the up-to-date history, complete so far as possible, of this strange case, it is time to sum up the ascertained facts, and draw therefrom what conclusions may appear plausible. The facts are briefly these:—

A. *July 1899.*—Four nestlings of *Athene* taken from the nest in a loose stone wall at Pizzocco, all said to have had black eyes. One at least certainly had them of that colour; it became the type of *A. chiaradiæ*.

B. *July 1900.*—No specimens of the black-eyed Civetta seen at and about Pizzocco.

C. *7th July, 1901.*—A nestling *A. chiaradiæ* captured in the nest in a hole in a cliff at Pizzocco, not far from where the first was got, but with it were three co-nestlings undoubtedly belonging to the common *A. noctua*.

D. *August 1901.*—A small Owl's nest found in the belfry of the church of the village of Fregona in the adjoining province of Belluno, in which were two ordinary nestlings of

A. noctua and one nestling of *A. chiaradiæ*. Seen by reliable witnesses, but neither by Mr. Vallon nor by myself—the black-eyed *Civetta* having been devoured by a cat shortly after being found.

E. 11th–12th July, 1902.—A small Owl's nest found by Mr. Vallon at Pizzocco, quite close to where the first was got, and also placed in a loose stone wall; it contained five nestlings—two black-eyed *A. chiaradiæ* and three yellow-eyed common *A. noctua*. The two parent birds, captured on the nest, had yellow eyes, and although belonging to *A. noctua*, are each of them singular and different in various ways from the ordinary *A. noctua*.

F. July 1902.—News got of a specimen of *A. chiaradiæ* used for enticing small birds by a shepherd in the hills between Pizzocco and Caneva di Sacile, four years ago, viz. in 1899. This may easily have been a co-nestling of the first specimen of *A. chiaradiæ* obtained, if the account of the shepherd-girl who took it at Pizzocco be true.

And now for an attempt to explain the very strange and novel case. Of course, after what is now known, my first supposition that *A. chiaradiæ* might have been one of the last survivors of a species on the verge of extinction falls to the ground. But the opposite hypothesis, that we have in this singular small Owl a case of *neogenesis*—i. e. the *ex-abrupto* formation of a *new type* with sufficient differential characters to constitute, if maintained, a *new species*,—can, I believe, be upheld.

The term *neogenesis* was first used to explain this sudden origin of new forms from old-established species, if I am not mistaken, by my friend and colleague Prof. Paolo Mantegazza, many years ago; it has been since used, more or less in the same sense, by the late Prof. Cope and by others. I have no intention here of making any attempt to explain the causes which may bring forth such a result: they are necessarily various and usually occult. Suffice it to say that without a strong perturbation of the force of heredity such primary causes would give no result.

Now, if in the case of *A. chiaradiæ* we have indeed an

instance of true neogenesis—and the divergence of the parent birds from the normal type of *A. noctua* in different directions would go some way to prove that in them the force of heredity had been disturbed,—we have before us an *attempt* at the formation of a new species, a case of singular and intense interest. I cannot but consider it as an attempt, so far, for it is very possible that the couple of somewhat anomalous *A. noctua* now dead—which generated in all probability the *four* and perhaps *eight* *A. chiaradiæ* born at Pizzocco, and which possibly may also have been the parents of the couple from which the specimen at Fregona (at no great distance) was born—were *alone* endowed with the faculty of generating the black-eyed form, and they can do so no more. Again, should any of their black-eyed offspring have survived or should the occult primary causes leading to this singular case of neogenesis yet exist, and should in N.E. Italy or elsewhere individuals of *A. chiaradiæ* be again produced and be able to breed freely, we cannot guess whether or not the force of heredity, regaining its full sway, may fix, so to speak, the differential characters of specific value which suddenly emerged in the first specimens of *A. chiaradiæ*, or else, turning back to an easy atavism, alter the black-eyed form again to the original yellow-eyed *A. noctua*.

In the first case a *well-defined* and *remarkable species* would be established; in the second my *A. chiaradiæ* would disappear. In either case I opine that the name I have given to the black-eyed Civetta should be maintained, for it is of obvious scientific interest to save this important case from oblivion. It will require several generations, under the most favourable hypothesis, viz. that more *A. chiaradiæ* be produced, to enable us to decide whether or not a *new species* of *Athene* has been formed.

As to any other hypotheses to explain the formation of *A. chiaradiæ*, I can but repeat that I reject both that based on *hybridism*, and that of a *teratological* or *pathological* cause. Hybrids always shew traces of the characters of both parents, especially when, as would be the case in

Athene, of sheer necessity the connubium cannot but occur with a species of such very distinct genera as *Nyctala*, *Scops*, and possibly *Glaucidium*; now *A. chiaradiæ* is purely and simply an *Athene*, and shews no trace whatever of the characters, either specific or generic, of any of the forms quoted above. As to a teratological or pathological origin, a mere glance at one of the black-eyed Civette will shew that they cannot owe their origin to such a cause. Besides in such cases, as again in hybrids, the form produced varies, and in these black-eyed descendants of *A. noctua* the specimens thus far examined are perfectly alike. The only instance in which we find perfect similarity in pathological descendants is in cases of absolute *albinism* or *melanism*, or, to put it better, in *monocroic* varieties.

My friend Prof. Martorelli, in his elaborate paper quoted above, fully agrees with me in excluding the possibility of a hybrid origin for the form I have called *A. chiaradiæ*; but comes to the conclusion that the two specimens known when he wrote are merely *abnormal* individuals of *A. noctua*. He comes to such a conclusion by starting from a supposed difference in the two specimens, which does not exist, being merely based on a slight omission in my first description of the peculiar characters of the remiges and rectrices in the type specimen of the black-eyed Civetta; and more especially by attributing far too great importance to the traces shewing that the longitudinal whitish bands on those feathers are derived from spots and blotches; this is a natural consequence of an immediate descent from *A. noctua*, in which such light spots and blotches, forming transverse bands on the wing and tail-feathers, exist. My friend Prof. Martorelli is an able and ardent student of the pigmentation of feathers; he has published remarkable and peculiar views on the subject, and is an admirer of Bohn and his theories on the "*évolution du pigment*."

Prof. Martorelli sums up the results of his investigation with the following words:—"The examination of this second specimen, on account of its diversity from the first one

described, does not appear to me to strengthen the supposition that they belong to a new species; on the contrary, those very differences appear to me to furnish the key to explain how the strange anomaly has been produced—an anomaly which I am inclined to consider one of the many forms of *allocroism*, because whilst on one hand we have here *albinism* caused by the disappearance of pigment, on the other we have *melanism* by its condensation in other parts of the same feather.”

I am sorry not to be able to agree with my friend Prof. Martorelli, who has my full esteem as a very competent and conscientious ornithologist. But, as I have already remarked, the two first specimens of *A. chiaradiæ* do not differ and are perfectly alike; and although I do not profess to be a specialist as regards the evolution of pigment in the feathers of birds, I cannot see any traces of albinism or of melanism in the singular small Owl which I call *A. chiaradiæ*.

In this case the question of its being a *good species* or not is of second-rate importance, and besides, in my opinion, it cannot at present be either upheld or denied. The very remarkable new form generated deserves to be kept distinct in the interest of a scientific problem of much greater importance than the mere addition to the *Systema Avium* of a new species.

I believe that neogenesis gives a logical explanation of the strange case of *A. chiaradiæ*. But neogenesis, which appears to be of frequent occurrence amongst plants, has rarely been noted in animals, and I believe never before amongst Vertebrata in a wild state.

Finally, as I have said before, neogenesis may or may not lead to the establishment of a new species.

Royal Zoological Museum, Florence,
25th August, 1902.

